Molothrus bonariensis 正體中文 **System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Aves	Passeriformes	Icteridae

Common name tordo renegrido (Spanish), shiny cowbird (English), tordo vaquero (Spanish), tordo lustroso (Spanish), vacher luisant (French)

Synonym *Molothrus bonariensis* , subspecies *maxillaris* Lafresnaye

Similar species

Summary Molothrus bonariensis (shiny cowbird) is a brood parasite, relying on a host to incubate its eggs and rear its chicks. It is not host-specific, laying eggs in the nests of other species of birds, some of which will accept and rear the chicks. Molothrus bonariensis has expanded its range in its native South America and West Indies, reaching the North American continent and negatively affecting some threatened bird species that are already at risk due to habitat loss.

view this species on IUCN Red List

Species Description
Molothrus bonariensis (shiny cowbird) belongs to the family Icteridae, which includes five species of parasitic cowbirds that form the natural genus *Molothrus* (as determined by phylogenetic analyses of mitochondrial DNA sequences) (Lowther, 2004). *Molothrus* includes the giant cowbird *Molothrus* [formerly *Scaphidura*] *oryzivorus* and excludes the non-brood parasitic bay-winged cowbird *Agelaioides* [formerly *Molothrus*] *badius*.\r\n
Field identification should be based on the presence of a slender conical bill, a uniform dull blue-black plumage and squared-off tail, and a solid dark eye-colour (Kluza, 1998). Males have a purplish shine on their head, neck, breast and upper back and a blue shine on their wings, while females are grey-brown with whitish eyebrows and throats (The Cornell Laboratory of Ornithology, 1999). Nestlings have flesh-coloured skin with scattered tufts of blackish down. The oral flanges range from white to yellow and the mouth lining is reddish. \r\n
Seven subspecies are recognised and may differ markedly in size. The smallest subspecies is *M. bonariensis minimus* (males average: 39g, females average: 32g), the largest is *M. b. cabanisii* (males average: 64g, females average 56g), with the nominal *M. b. bonariensis* being intermediate (males average: 56g, females average: 45.6g) (Wiley 1986; Kattan 1996; Mermoz and Reboreda 2003, and in M. E. Mermoz., pers. comm, 2005).

Notes
Parasitic cowbirds have developed behavioural and cognitive mechanisms to deal with the spatial demands associated with brood parasitism. Neurological studies have revealed that parasitic cowbirds have larger hippocampal formations (the part of the brain associated with spatial memory acquisition) than non-parasitic cowbirds. In sexually dimorphic species, such as *M. bonariensis* (in which the females alone perform the parasitic behaviour), only the female has the larger hippocampus. This is believed to be important in patrolling the home range for appropriate nests, remembering the location and status of nests for subsequent identification, and updating the nest status after each egg has been laid in a nest. Interestingly this difference occurs only during the breeding season, indicating neural change takes place seasonally (Nair 2002).

Lifecycle Stages
The incubation period of *Molothrus bonariensis* (shiny cowbird) is about 11 - 13 days.
Eggs have an extraordinary diversity in the colour and markings and can be pure white or flesh coloured with sparsely or densely scattered pink or red flecks. Some may have fine marks like pen scratches while others may have large chocolate brown spots. There is no such thing as characteristic markings in the eggs of this species although the eggs of the same individual show a \"family resemblance\". In general eggs may be white-immaculate or spotted; spotted eggs may have a white, pale gray or pale blue background with a variable pattern of gray and reddish-brown spots. In size they may vary from 20mm x 26mm to 18mm x 22mm (Friedmann, 1929).

Habitat Description
Molothrus bonariensis (shiny cowbird) is a native inhabitant of the South American pampas. The pampas cover c. 900,000 km² between latitudes 28°-39°S and longitudes 50°-65°W in the southernmost part of Brazil, the whole of Uruguay and the central-eastern part of Argentina. The climate is mild with precipitation of 600-1200mm more or less evenly distributed through the year. The soils are very rich and the dominant vegetation types are grassy prairie and grass-steppe in which numerous species of the Gramineae tribe Stipeae (*Stipa* and *Piptochaetium*) are particularly conspicuous. There is an almost absolute lack of native trees, except along main watercourses (CPD, Undated). \r\n
The climate of central Argentina and Uruguay (Buenos Aires, Cordoba, Rosario, Santa Fe, Mar Del Plata, Montevideo, Punta del Este, Colonia Sacremento) is naturally changeable (as this region is in the mid-latitudes). Winters are cool to mild and summers are very warm and humid. Rainfall is fairly uniform throughout the year but is a little heavier during the summer. Annual rainfall is heaviest near the coast and decreases gradually further inland. Rain in late spring and summer usually arrives in the form of brief heavy showers and thunderstorms. More general rainfall occurs during the remainder of the year as cold fronts and storm systems move through. Although cold spells during the winter often send night-time temperatures below freezing, snow is quite rare. In most winters, a few light snowfalls occur over inland areas. Snow is extremely rare near the coast (Papandrea, 2000).\r\n
M. bonariensis is able to adapt to a wide variety of habitat-types other than its native pampas. It is common in cultivated land in its native region (much of which has been modified to graze cattle or plant soybeans). In Chile, *M. bonariensis* is common in the marshes of the central provinces (Marín, 2000). In this country dry years with little or no snow have been noted to correspond to higher abundances of cowbirds (Rahmer, in Friedmann 1929). Subspecies *bonariensis* skips heavily forested areas while subspecies *cabanisii* may occur in the lower borders of cloud forests. Subspecies *aequatorialis* is found in a variety of ecosystems, from dry sandy habitats with stunted vegetation to mangrove forests to impenetrable jungle (Friedmann, 1929). In Ecuador in the area around the Rio Jubones drainage system in the Yunguilla valley *M. bonariensis* has been reported to favour warm dry habitats (Oppel *et al.* 2004). *M. bonariensis* avoids the following regions in South America: the Amazonian forests, the High Andes and southern Patagonia (Friedmann, 1929; Fraga, 1985, Wiley, 1985, in Mermoz and Reboreda 1994).

Reproduction
Molothrus bonariensis is an obligate brood parasite, that is, it has completely abandoned the task of building nests, incubating eggs, and feeding and rearing nestlings. It is an extreme generalist, basing its reproductive success on high fecundity, which is estimated to be 60 to 100 eggs per breeding season (Hudson, 1920 in Friedmann, 1929). Another estimate is 120 eggs per year (Kattan, 1993, in Kattan, 1996). Shiny cowbirds monitor host nests in their territory but are sloppy at synchronising egg-laying with that of their host. Katten (1996) found that 33% of cowbird eggs were laid in coincidence with the host's laying period, while 55% were laid before and 12% after. There appears to be no specificity in terms of which host-species *M. bonariensis* prefers in any area. High cowbird density or low host nests availability may induce shiny cowbirds to be wasteful, laying eggs on the ground or in nests crowded with up to 36 other cowbird eggs (Kattan, 1996). Such nests are necessarily abandoned by the host!
The breeding season of *M. bonariensis* is October to January in Argentina, but may be extended in the South American tropics. Shiny cowbirds have been known to synchronise breeding with that of their high quality hosts (Wiley 1988, in Mermoz and Reboreda 2003). In Ecuador *M. bonariensis* visited the Yunguilla Reserve during the breeding season of the pale-headed brushfinch (*Atlapetes pallidiceps*), a resident host (Schmidt and Schaefer, 2003). The reproductive success of cowbirds depends on the size and life traits of the host; cowbird chicks in the nests of smaller hosts such as the house wren *Troglodytes aedon* have high survival rates due to cowbirds having a competitive edge over their "siblings" (Katten, 1996., in Katten 1997). Cowbird chicks in the nests of large hosts such as the chalk-browed mockingbird *Mimus saturninus* have lower survival rates (Fraga, 1985., in Katten 1997). Although it is large, the brown-and-yellow marshbird *Pseudoleistes virescens* has "helper" birds that aid in chick rearing, which increases chick survival rates (Mermoz and Reboreda, 1994). Other traits that increase the value of a cowbird host include: the construction of open nests, low nest attentiveness during egg-laying, a clutch size of 4 to 5 eggs, an extended breeding season and a long incubation period. Some hosts reject unusual looking eggs or eggs laid before or after their own by pushing them out of the nest, building the nest over them or abandoning their nest (Friedmann, 1929; Wiley, 1988; Schmidt and Schaefer, 2003; Kattan, 1996; Mermoz and Reboreda, 1994). For example cowbird chicks hatch 1 to 4 days before brown-and-yellow marshbird chicks, which may give them up to a 4-day head-start on their nest-mates (Mermoz and Reboreda, 2003).

Nutrition
Omnivorous: Studies indicate that nestling cowbirds require a diet composed of protein, which most passerine species will provide for their young (Mason, 1986). For example, pale-headed brushfinch feed their fledglings (and any cowbird parasitic fledglings in their nest) small invertebrates such as crickets, caterpillars, adult Lepidoptera, beetles and earthworms (Lumbricidae) (Schmidt and Schaefer, 2003). Resident birds have been noted to eat a greater proportion of insects in their diet, while migrant birds rely on seeds to a greater extent (Friedmann, 1929). They have been observed feeding on the nectar of flax (*Phormium tenax*) flowers (Isacch, 2002)

General Impacts
Molothrus bonariensis (shiny cowbirds) affect their victims by destroying or devouring their eggs. They burden victims that accept responsibility for their eggs with the additional and significant costs involved in incubating eggs and feeding and rearing the changelings. Competitive pressure on host young is also increased due to the generally relatively early hatching (and sometimes relatively larger) cowbirds. The extent to which a host species is affected depends on a number of elements, including the overlap between the host and cowbird breeding season in a region, the physical ability of the host to care for cowbird chicks, and the presence or absence of a host species' evolved behavioural response to cowbird eggs. Species that have not co-evolved with brood parasitism are often more vulnerable. (Cruz *et al*. 1995). \r\n
Shiny cowbirds are currently a threat to several vunerable bird species on some West Indian islands where they have spread to (from continental South America and other islands already populated with the shiny cowbird). For example, on the island of Puerto Rico the yellow-shouldered blackbird (see *Agelaius xanthomus* in IUCN Red List of Threatened Species) is thought to be endangered mainly due to parasitism by *M. bonariensis* (Lopez-Ortiz *et al*. 2002). Another species endemic to this region, the Puerto Rican vireo (*Vireo latimeri*), is also threatened by the brood parasitism of *M. bonariensis*, which threatens to wipe out the local population in the Guánica Forest reserve (Puerto Rico's largest dry forest reserve) (Woodworth 1999). In fact, nest predation and parasitism are believed to be the primary causes of reproductive failure in northern temperate passerine songbirds (Woodworth 1999) (although it is hard to imagine that habitat loss is a significantly less important factor relating to nesting failure). In regions of continental South America where the shiny cowbird is native, brood parasitism threatens some vulnerable species already affected by habitat loss, for example the critically endangered pale-headed brushfinch (see *Atlapetes pallidiceps* in IUCN Red List of Threatened Species) (Oppel *et al* 2004) and the endangered Forbes' blackbird (see *Curaeus forbesi* in IUCN Red List of Threatened Species) (Studer and Vielliard, 1988).\r\n
Host species whose health and abundance are threatened significantly by *M. bonariensis* are not necessarily important for the sustainment of cowbird populations (meaning their decline will not affect abundance of *M. bonariensis*). Conversely, a large wide-ranging continental species that is minimally affected as a whole by cowbirds may play an important role in sustaining populations of *M. bonariensis* (which provide "reservoirs" for the sustainment and subsequent spread of the species) (Oppel *et al.* 2004). For a full list of victims and hosts please see: Lowther, 2004. Lists of Victims and Hosts of the Parasitic Cowbirds (*Molothrus*) .

Management Info
Smith (1999) suggested cowbird control to be justified if the parasitism level exceeds 60% over 2 years, however, small isolated bird populations facing multiple threats may be non self-sustaining at levels as low as 20%. Factors influencing the intensity of cowbird parasitism include the type of microhabitat nests are built in (including the level of nest concealment and the structural diversity of vegetation); forest bird nests in cleared areas may be more vulnerable to cowbird parasitism. A study of the endangered pale-headed brushfinch (*Atlapetes pallidiceps*) in Ecuador, however, revealed land use to be a major factor determining the impact of cowbird parasitism. In cattle-grazed areas breeding rates of the brushfinch were two times greater than in ungrazed areas due to a decrease in cowbirds numbers (correlated with a decrease in bird diversity and abundance in the grazed areas) (Oppel *et al.* 2004). \r\n
On the other hand, *M. bonariensis* is associated with dry open habitats (rather than moist forest habitats) and its range expansion (in Chile and the West Indies) may have been facilitated by the conversion of forested areas to early successional habitats (as well as the lack of native brood parasites in the case of some West Indian islands case) (Marín 2000; Post and Wiley, 1977, Cruz *et al.* 1995). \r\n
Physical: Most removal programmes in North America rely on large cage-traps for cowbird control. Selective shooting has also been applied to remove cowbirds, but has yielded mixed results. While site-specific shooting may be an effective complementary tool to support landscape-scale management, shooting alone may not always be sufficient to significantly reduce cowbird parasitism rates (Eckrich *et al.* 1999., Whitfield, 2000., in Oppel *et al.* 2004).\r\n
Another effective option is to monitor host nests during the breeding season, constantly removing cowbird eggs and chicks. Host eggs must be clearly distinguishable from cowbird eggs. When nest monitoring is required the host nests should not be approached while either parent close to the nest, and damage to the surrounding vegetation should be kept to a minimum to avoid creating gaps to the nest and encouraging predation. While this method is intrusive and requires a considerable level of skill, nest manipulation is efficient and cost-effective, especially in areas where trapping is impractical (Schmidt and Schaefer, 2003; Oppel *et al.* 2004).\r\n
Integrated management: Cowbird control has to be maintained for an infinitely long time, as cowbird populations at a regional level are not affected by most removal programmes. Despite often leading to reduced parasitism rates, cowbird removal has only occasionally triggered an evident increase in the target host population, and it has been suggested that habitat quality or quantity might be more limiting than cowbird parasitism rates alone (Oppel *et al.* 2004).

Principal source: Friedmann, 1929. Subgenus *Molothrus*: *Molothrus bonariensis*. In Springfield, C.C. Thomas (ed). *The Cowbirds: a Study in the Biology of Social Parasitism*. \r\n
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Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

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ALIEN RANGE

[1] ARGENTINA
[1] BARBADOS
[1] CHILE
[1] CURACAO
[1] HISPANIOLA
[1] MARTINIQUE
[2] PERU
[1] SAINT LUCIA
[2] BAHAMAS
[1] BRAZIL
[1] CUBA
[1] GREATER ANTILLES
[1] JAMAICA
[1] MEXICO
[1] PUERTO RICO
[9] UNITED STATES

Red List assessed species 22: CR = 1; EN = 6; VU = 5; NT = 1; LC = 9;

Agelaius assimilis **LC**
Agelaius humeralis **LC**
Agelaius xanthomus **EN**
Asthenes luizae **NT**
Atlapetes pallidiceps **EN**
Curaeus forbesi **EN**
Dendroica pityophila **LC**
Dives atroviolaceus **LC**
Ferminia cerverai **EN**
Icterus northropi **CR**
Loxia megaplaga **EN**
Nesopsar nigerrimus **EN**
Poospiza cinerea **VU**
Sturnella defilippii **VU**
Sturnella magna **LC**
Teretistris fernandinae **LC**
Teretistris fornsi **LC**
Turdus lherminieri **VU**
Vireo altiloquus **LC**
Vireo gundlachii **LC**
Xanthopsar flavus **VU**
Xolmis dominicanus **VU**

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Spanish:
La lista de especies del Sistema de informaci&#65533;n sobre especies invasoras de m&#65533;xico cuenta actualmente con informaci&#65533;n aceca de nombre cient&#65533;fico, familia, grupo y nombre com&#65533;n, as&#65533; como h&#65533;bitat, estado de la invasi&#65533;n en M&#65533;xico, rutas de introducci&#65533;n y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la p&#65533;gina de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualizaci&#65533;n, por favor consulte la portada (http://www.conabio.gob.mx/invasoras/index.php/Portada), en la secci&#65533;n novedades, para conocer los cambios.
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